

Applicant:

Fredberg et al.

For:

RADOME REINFORCED WITH POLYESTER-POLYARYLATE
FIBERS AND A METHOD OF MAKING SAME

- 1 1. A radome comprising flexible composite fabric material including
2 polyester-polyarylate fibers in a flexible resin matrix material.

- 1 2. The radome of claim 1 in which the polyester-polyarylate fibers are woven
2 into fabric.

- 1 3. The radome of claim 1 in which the polyester-polyarylate fibers are knitted
2 into fabric.

- 1 4. The radome of claim 1 in which the flexible resin matrix is a polyurethane
2 resin.

- 1 5. The radome of claim 1 further including a skin bonded to the flexible
2 composite fabric material.

- 1 6. The radome of claim 5 wherein the skin is comprised of
2 polytetrafluoroethylene (PTFE).

- 1 7. The radome of claim 5 wherein the skin is comprised of fluorinated
2 ethylene propylene (FEP).

1 8. The radome of claim 5 wherein the skin is comprised of perfluoroalkoxy
2 resin (PFA).

1 9. The radome of claim 1 in which the polyester-polyarylate fibers have a
2 length of several hundred feet.

1 10. The radome of claim 1 in which the polyester-polyarylate fibers form
2 yarns.

1 11. The radome of claim 10 in which the yarns are woven.

1 12. The radome of claim 10 in which the yarns are knitted.

1 13. The radome of claim 1 in which the flexible composite fabric material is
2 comprised of one ply.

1 14. The radome of claim 1 in which the flexible composite fabric material
2 includes more than one ply.

1 15. The radome of claim 2 in which the fabric is multi-axial.

1 16. The radome of claim 3 in which the fabric is multi-axial.

1 17. A radome comprising flexible composite material including polyester-
2 polyarylate fibers woven in a flexible resin matrix.

1 18. A radome comprising flexible composite material including polyester-
2 polyarylate fibers knitted in a flexible resin matrix.

- 1 19. A method of producing a radome, the method comprising:
- 2 combining polyester-polyarylate fibers with a flexible resin matrix
- 3 material to form a flexible composite fabric material.
- 1 20. The method of claim 19 in which the polyester-polyarylate fibers are
- 2 woven into fabric.
- 1 21. The method of claim 19 in which the polyester-polyarylate fibers are
- 2 knitted into fabric.
- 1 22. The method of claim 19 in which the flexible resin matrix material is a
- 2 polyurethane resin.
- 1 23. The method of claim 19 further including bonding a skin to the flexible
- 2 composite fabric material.
- 1 24. The method of claim 23 wherein the skin is comprised of
- 2 polytetrafluoroethylene (PTFE).
- 1 25. The method of claim 23 wherein the skin is comprised of fluorinated
- 2 ethylene propylene (FEP).
- 1 26. The method of claim 23 wherein the skin is comprised of perfluoroalkoxy

2 resin (PFA).

1 27. The method of claim 23 wherein the skin is bonded to the flexible
2 composite fabric material by chemical etching.

1 28. The method of claim 23 wherein the skin is bonded to the flexible
2 composite fabric material by corona treatment combined with adhesive bonding.

1 29. The method of claim 23 wherein the skin is bonded to the flexible
2 composite fabric material by lamination.

1 30. The method of claim 23 wherein the skin is bonded to the flexible
2 composite fabric material by melt processing.

1 31. The method of claim 19 further including forming plies of flexible
2 composite fabric material.

1 32. The method of claim 20 in which the fabric is multi-axial.

1 33. The method of claim 21 in which the fabric is multi-axial.